What is claimed is:

1. A telemetry system for enabling data transfer from an implantable medical device to an external device, comprising:

an external device having an antenna and a transmitter for transmitting a radio-frequency carrier signal to an antenna of the implantable device;

an implantable device having an antenna and a tuning circuit for adjusting the impedance of the antenna in a time varying manner so as to phase modulate a carrier signal reflected therefrom in accordance with a digital data signal; and,

a receiver in the external device for receiving the phase modulated carrier signal reflected from the antenna of the implantable device and extracting the digital data signal therefrom.

2. The system of claim 1 wherein the frequency of the radio-frequency carrier signal and the dimensions of the antennas are such that a significant portion of the radio-frequency energy emitted by the external device antenna and reflected by the implantable device antenna is far-field radiation.

3. The system of claim 1 further comprising a receiver in the implantable device for receiving a radio-frequency carrier modulated with digital data from an external device.

4. The system of claim 1 wherein the tuning circuit comprises a symbol encoder for encoding the digital data signal into corresponding voltage level symbols that are used to adjust the impedance of the implantable device antenna for a specified symbol period so that the radio-frequency carrier is reflected with a phase-shift corresponding to each symbol.

5. The system of claim 4 wherein the antenna tuning circuit further comprises a tank circuit with a voltage-controlled capacitance adjusted by the symbol encoder in accordance with the digital data signal.

6. The system of claim 4 wherein the voltage-controlled capacitance is a varactor diode.

7. The system of claim 4 wherein the digital data is encoded into binary symbols by the symbol encoder such that the reflected radio-frequency carrier is modulated with binary phase-shift keying.

8. The system of claim 4 wherein the digital data is encoded into four symbols by the symbol encoder such that the reflected radio-frequency carrier is modulated with quadrature phase-shift keying.

9. The system of claim 4 wherein the external device receiver comprises a demodulator and a symbol decoder for recovering the digital data from the reflected radio-frequency carrier signal.

10. The system of claim 9 wherein the demodulator is a synchronous demodulator that correlates the radio-frequency signal reflected from the implantable device with a locally generated reference carrier signal.

11. The system of claim 10 wherein the implantable device periodically modulates the reflected radio-frequency carrier signal with alignment symbols having no phase shift in order for the external device receiver to generate a synchronized reference carrier signal.

12. The system of claim 9 wherein the implantable device differentially encodes the digital data such that symbols are represented in the modulated carrier by the phase change from one symbol period to another.

13. The system of claim 12 wherein the demodulator of the external device receiver correlates the radio-frequency signal reflected from the implantable device with the same signal delayed by a symbol period.

14. The system of claim 13 wherein the radio-frequency carrier reflected from the implantable device is modulated with differential binary phase-shift keying.

15. The system of claim 13 wherein the radio-frequency carrier reflected from the implantable device is modulated with differential quadrature phase-shift keying.

16. A method for enabling data transfer from an implantable medical device to an external device, comprising:

transmitting a radio-frequency carrier signal from an antenna of the external device to an antenna of the implantable device;

adjusting the impedance of the implantable device antenna in a time varying manner so as to phase modulate a carrier signal reflected therefrom in accordance with a digital data signal; and,

receiving the phase modulated carrier signal reflected from the implantable device antenna at the external device and extracting the digital data signal therefrom.

17. The method of claim 16 wherein the frequency of the radio-frequency carrier signal and the dimensions of the antennas are such that a significant portion of the radio-frequency energy emitted by the external device antenna and reflected by the implantable device antenna is far-field radiation.

18. The method of claim 16 further comprising encoding the digital data signal into corresponding voltage level symbols and adjusting the impedance of the implantable device antenna for a specified symbol period so that the radio-frequency carrier is reflected with a phase-shift corresponding to each symbol.

19. The method of claim 18 wherein the impedance of the implantable device antenna is adjusted by adjusting a voltage-controlled capacitance of a tank circuit connected to the antenna.

20. The method of claim 16 further comprising synchronously demodulating the signal received at the external device by correlating the signal reflected from the implantable device with a locally generated reference carrier signal.

21. The method of claim 20 further comprising periodically modulating the reflected radio-frequency carrier signal with alignment symbols having no phase shift in order for the external device receiver to generate a synchronized reference carrier signal.

22. The method of claim 16 further comprising differentially encoding the digital data at the implantable device such that symbols are represented in the modulated carrier by the phase change from one symbol period to another.

23. The method of claim 22 further comprising demodulating the signal received at the external device by correlating the signal reflected from the implantable device with the same signal delayed by a symbol period.